Appl. No. : 10/022,631
Amendment Dated : May 4, 2006
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Attorney Docket No.: 1000780-00002

Amendments to the Claims:

This listing of the claims will replace all prior versions and listings of claims in the application:

Claims 1-25. (Canceled)

26. (Currently Amended) A method for killing target cells in a mammal by α-particle radiotherapy, wherein said target cells are in micrometastases having a diameter of about 1 mm or less ~~or are in cellular diseases~~, said method comprising providing a sufficient quantity of ^{225}Ac to produce a therapeutically effective amount of ^{213}Bi through radioactive decay, binding the ^{225}Ac onto a substrate for immobilizing ^{225}Ac, eluting from the substrate ^{213}Bi produced by bound ^{225}Ac, coupling the eluted ^{213}Bi, substantially free of ^{225}Ac, to a targeting moiety to form a conjugate, said targeting moiety being selected from the group consisting of a ligand having binding specificity for a receptor associated with said target cell or a ligand fragment having binding specificity for a receptor associated with said target cells, and administering said conjugate to said mammal to effectuate specific binding of said conjugate to said target cells.

27. (Original) The method as claimed in claim 26, wherein the conjugate is administered intermittently in fractions of the total amount of conjugate required to provide an effective amount of ^{213}Bi for killing said target cells in the mammal, and wherein a sufficient number of fractions of sufficient quantities of conjugate are administered to kill essentially all target cells bound by said conjugate, the total quantity of α radiation administered to the mammal being less than the total quantity necessary to kill essentially all target cells by administering a single dose of said conjugate.

28. (Original) The method as claim in claim 26, wherein said conjugate is administered continuously for a time sufficient to administer an effective amount of ^{213}Bi for killing said target cells in the mammal, and wherein a sufficient duration of continuous administration is maintained to kill essentially all target cells bound by said conjugate.

29. (Original) The method as claimed in claim 26, wherein said ligand is a peptide.

30. (Withdrawn) A method for detecting a pathological site in a mammal, said pathological site comprising a target moiety, said method comprising providing a radioconjugate of a targeting moiety bound, directly or indirectly, to an α-particle emitting radioisotope, said target moiety and said targeting moiety constituting a specific binding pair, administering said conjugate to said mammal to effectuate specific binding of said conjugate to said target moiety and detecting α-particles emitted by said bound conjugate.

31. (Withdrawn) A method as claimed in claim 30, wherein said pathological site comprises diseased cells.

32. (Withdrawn) A method as claimed in claim 31, wherein said α-particle emitting radioisotope is ^{213}Bi.

33. (Withdrawn) A method as claimed in claim 32, wherein said targeting moiety is a ligand having binding specificity for a cell surface receptor present on said diseased cells.

34. (Withdrawn) A method as claimed in claim 33, wherein said ligand is a peptide.

35. (Withdrawn) A method as claimed in claim 30, wherein said pathological site is an extracellular structure.

36. (Withdrawn) A method as claimed in claim 35, wherein said α-particle emitting radioisotope is ^{213}Bi.

37. (Withdrawn) A method as claimed in claim 36, wherein said targeting moiety is a ligand having binding specificity for a receptor present on said extracellular structure.

38. (Withdrawn) A method as claimed in claim 37, wherein said ligand is a peptide.

39. (Currently Amended) A method for providing site directed radiotherapy to a pathological site in a mammal in need of such therapy, said pathological site comprising a target moiety, said method comprising providing a radioconjugate comprising of a targeting moiety bound, directly or indirectly, to an α-particle emitting radioisotope, wherein the α-particle emitting radioisotope is ^{225}Ac or ^{213}Bi, said target moiety and said targeting moiety constituting a specific binding pair, and administering to said mammal a sufficient amount of said conjugate to produce a radiotherapeutic effect at said pathological site, wherein the pathological site comprises a micrometastasis having a diameter of about 1 mm or less.

40. (Original) A method as claimed in claim 39, wherein said pathological site comprises diseased cells.

41. (Original) A method as claimed in claim 40, wherein said α-particle emitting radioisotope is ^{213}Bi.

42. (Original) A method as claimed in claim 41, wherein said targeting moiety is a ligand having binding specificity for a cell surface receptor present on said diseased cells.

43. (Original) A method as claimed in claim 42, wherein said ligand is a peptide.